UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,959	10/24/2001	Diane M. Landers	DP-306554 / DE3-0257	7053

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EDMUND P. ANDERSON
DELPHI TECHNOLOGIES, INC.
Mail Code: 480-414-420
P.O. Box 5052
Troy, MI 48007-5052

EXAMINER
SHECHTMAN, SEAN P

ART UNIT	PAPER NUMBER
2125	

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,9-11,13-18,21-24,31-33,35-40,43-46,53-55,57-62,65-68,75-77,79-84 and 87-92* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1, 2, 9-11, 13-18, 21-24, 31-33, 35-40, 43-46, 53-55, 57-62, 65-68, 75-77, 79-84, and 87-92 are presented for examination. Claims 1, 2, 16, 23, 24, 38, 45, 46, 60, 67, 68, and 82 have been amended. Claims 3-8, 12, 19, 20, 25-30, 34, 41, 42, 47-52, 56, 63, 64, 69-74, 78, 85 and 86 have been cancelled. Claims 89-92 have been added.

Drawings

2.   Objections withdrawn in light of the amendment filed December 27th 2005.

Specification

3.   Objections withdrawn in light of the amendment filed December 27th 2005.

Claim Objections

4.   Objections withdrawn in light of the amendment filed December 27th 2005.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 2, 9-11, 13-18, 21-24, 31-33, 35-40, 43-46, 53-55, 57-62, 65-68, 75-77, 79-84, and 87-92 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5.   Claims 1, 23, 45, and 67 require the limitation of virtual machining a manufacturing feature into a virtual blank, wherein the manufacturing feature exhibits an associative relationship with a coordinate system, wherein the virtual blank lacks an associative relationship with the coordinate system, wherein the virtual blank is included in a master product and process

concurrent model that also lacks an associative relationship with the coordinate system. Since a

manufacturing features is machined into the virtual blank and the manufacturing feature exhibits

an associative relationship with a coordinate system, the virtual blank and master product and

process concurrent model would also, by association, have a relationship with the coordinate

system. Therefore, it is not clear how the virtual blank and master product and process

concurrent model lacks an associative relationship with the coordinate system.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6.   Claims 67, 68, 75-77, 79-84, 87, 88, 92 are rejected under 35 U.S.C. 101 because the

claimed invention is directed to non-statutory subject matter. Claims 67, 68, 75-77, 79-84, 87,

88, 92, are directed to a data signal, not a process, machine, manufacture, or composition of

matter, and therefore constitutes non-statutory subject matter under 35 U.S.C. 101.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found

in a prior Office action.

7.   Claims 1, 2, 9-11, 13-18, 21-24, 31-33, 35-40, 43-46, 53-55, 57-62, 65-68, 75-77, 79-84,

and 87-92 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No.

6,629,065 to Gadh (whole document) in view of U.S. Pat. No. 4,928,221 to Belkhiter (whole

document).

Referring to claims 1, 23, 45, and 67, Gadh clearly teaches a method, system, and

computer program of horizontally structured CAD/CAM manufacturing for concurrent product

and process design (WHOLE DOCUMENT, especially, Fig. 55A and 55B; Col. 36, lines 28-39;

Col. 8, lines 5-24), comprising:

identifying a real-world blank for machining into an actual part (Figs. 10A-10C and

corresponding description, i.e., "rubber-banding"); generating a virtual blank from a referenced

set of geometries, the virtual blank corresponding to the real-world blank and lacking an

associative relationship with a coordinate system (In column 18, lines 1-10 and figures 5A-5C;

In column 19, line 3- column 20, line 47); creating a master product and process concurrent

model (Col. 10, lines 22-58) having both process and product model characteristics, said master

product and process concurrent model including a virtual blank corresponding to said real-world

blank (Fig. 55A, element b1) , said master product and process concurrent model lacking an

associative relationship with a coordinate system (See Fig. 25A-25D; Col. 24, lines 6-32); and

virtual machining a manufacturing feature into said virtual blank (See Figs. 52A-56B and Col.

36, lines 1-44; See Col. 35, lines 61-63; Col. 36, lines 63-67; In column 19 and figures 6-10),

said manufacturing feature exhibiting an associative relationship with said coordinate system

(See Fig. 25A-25D; Col. 24, lines 6-32);

Referring to claims 2, 24, 46, 68, Gadh teaches the above, wherein said associative

relationship is a parent/child relationship (Col. 24, lines 6-32; Col. 40, lines 14-57). Referring to

claims 9-10, 31-32, 53-54, 75-76, Gadh teaches the above, further comprising creating extracts

from said master product and process model, wherein said extracts comprise replicated models of

said master product and process model at various operations of said manufacturing (Fig. 55C;

Col. 10, line 54- Col. 11, line 7). Referring to claims 12-17, 34-39, 56-61, 78-83, Gadh teaches

the above, wherein said virtual blank is positioned and oriented relative to said coordinate

system, wherein said virtual blank is generated as a three dimensional parametric solid model

from a reference set geometry, wherein said reference set geometry is defined by dimensional

characteristics of a modeled part, wherein establishing said coordinate system comprises one or

more datum planes, wherein said coordinate system comprises: creating a first datum plane

positioned and oriented relative to a reference, creating a second datum plane positioned and

oriented relative to said reference; and creating a third datum plane positioned and oriented

relative to said reference, wherein said first datum plane, said second datum plane, and said third

datum plane are orthogonal (Figs. 25A-D and 55A).

Gadh teaches all of the limitations set forth above and Gadh clearly teaches creating a

model and constructing a part in the VDSF, however, Gadh fails to provide for generating a

product drawing of a real-world component from said master product and process concurrent

model and deriving manufacturing instructions from the master product and process concurrent

model to create a real-world component by machining the manufacturing feature into the real-

world blank.

In view of the above, the examiner respectfully submits that patentability resides in the

determination of non-obviousness with respect to generating a product drawing of a real-world

component from said master product and process concurrent model and deriving manufacturing

instructions from the master product and process concurrent model to create a real-world

component by machining the manufacturing feature into the real-world blank. The examiner

respectfully submits that generating a product drawing of an actual part and deriving machining

instructions to create the actual part by machining, in real life, a manufacturing feature, into a

blank, is commonly known in the art, and therefore, the examiner is unable to make said

determination of non-obviousness at this time.

The examiner believes these limitations are clearly taught by Belkhiter.

Referring to claims 1, 23, 45, and 67, Belkhiter clearly teaches analogous art, wherein a

conventional CAD/CAM system is used to produce a part drawing (Col. 2, lines 53-66 of '221)

and then generating machining instructions to create said actual part by machining

manufacturing features into a blank (See Cols. 7-8, table 2; Col. 1, lines 6-14 of '221). Referring

to claims 11, 18, 21-22, 33, 40, 43-44, 55, 62, 65-66, 77, 84, 87, 88, Belkhiter teaches creating

extracts from a master product and process model, wherein said extracts are used to generate

manufacturing process sheets, wherein said product drawings include an associative relationship

with said master product and process concurrent model (Col. 14, lines 6-11 of '221), wherein the

master product and process concurrent model links to a process planning system, wherein said

process planning system comprises automated creation of a manufacturing process plan (Fig. 1,

element 14; Col. 3, lines 24-48 of '221).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that

the invention was made to combine the teachings of Belkhiter with the teachings of Gadh.

One of ordinary skill in the art would have been motivated to combine Belkhiter with

Gadh because Belkhiter teaches a part program suitable for machining a part from a drawing

without the need for human intervention. Furthermore, Belkhiter teaches a system that reduces

lead-time between the request for a part and the machining of a part. Further still, Belkhiter

teaches a system that reduces manpower costs (Col. 1, line 62 - Col. 2, line 2 of '221).

Response to Arguments

Applicant's arguments filed December 27th 2005 have been fully considered but they are

not persuasive.

8.   Applicant argues that Gadh fails to teach generating a virtual blank from a referenced set

of geometries. The examiner respectfully disagrees. The examiner respectfully submits that

Gadh teaches this limitation in any of the following ways:

In column 18, lines 1-10 and figures 5A-5C, Gadh clearly teaches and shows the addition

and interactive geometric manipulation of an selected object primitive, such as a cylinder, to the

3D VE workspace. The examiner respectfully submits that the addition and interactive

geometric manipulation of an selected object primitive, such as a cylinder, is generating a virtual

blank from a referenced set of geometries.

In column 19, line 3- column 20, line 47, Gadh teaches creation of complex shapes by

aggregating predefined shape elements, wherein a library of shape elements can be extended to

include primitives having different shapes modeled as a collection of surfaces with vertex, edge

and face, adjacency. Gadh also teaches VDSF allows modification of preexisting geometry and

3D rubber banding. The examiner respectfully submits that creation of complex shapes by

aggregating predefined shape elements and/or modification of preexisting geometry and 3D

rubber banding is generating a virtual blank from a referenced set of geometries. See figures

10A-10C.

9.   Applicant argues that Gadh fails to teach virtual machining a manufacturing feature into

the virtual blank. The examiner respectfully disagrees.

Gadh clearly teaches exemplary embodiments of a "machined part constructed in VDSF"

(See Col. 35, lines 61-63; Col. 36, lines 15-44). VDSF is the Virtual Design Software

Framework. The examiner respectfully submits that a machined or injection-molded part constructed in VDSF is virtual machining of a virtual blank.

Gadh clearly repeatedly provides manufacturing features that are virtually machined (See Figs. 52A-56B; and the entire disclosure of Gadh document). For example, Gadh clearly teaches the intersection of one element into another (Col. 36, lines 33-34). Furthermore, Gadh teaches that the operating characteristics of the VDSF allows the designer to create "a shape by adding elements (positive or negative) via the "Add On" Operation", wherein the constraints of this operation prevents the generation of an invalid model (Col. 36, lines 63-67). In column 19 and figures 6-10 Gadh clearly teaches these "Add On"(s), such as Add On boss, Add On rib, Add On rectangular slots, pockets, holes, etc, etc.

10.   Applicant argues that Gadh fails to teach the manufacturing feature exhibits an associative relationship with the coordinate system. The examiner respectfully disagrees. Examiner respectfully submits that "associative relationship" requires no further explanation and that it will be given its plain meaning as required by MPEP 2111.01. Webster's Dictionary defines associative as "of, or relating to, in association with" while relationship as "a state or character of being related...a natural or logical association between two or more things, connection." The examiner respectfully submits that Gadh teaches this limitation any of the following ways:

In column 24, lines 6-32, Gadh clearly teaches alignment of elements in the X and Y axes. In mathematics, the X and Y axes are known as a Cartesian coordinate system. Figure 25 shows X, Y, and Z axes, and even draws the three-dimensional coordinate system. The examiner

respectfully submits that anything aligned with a coordinate system shares an associative

relationship with the coordinate system.

Referring to the figures 55A-5B of Gadh, the virtual blank is element b1, and a

manufacturing feature could clearly be any of nw or nb with exclusive relationships to b1. Gadh

clearly teaches elements as add-ins, wherein, as mentioned above, the figures depict "a machined

part constructed in VDSF". Figures 55A-5B of Gadh clearly shows the manufacturing features

on *a grid coordinate system*. The examiner respectfully submits that the features on a grid

coordinate system a features that share an associative relationship with the coordinate system.

Furthermore, Gadh clearly teaches a child element (which can clearly be interpreted, as any of

the nw or nb elements) has an associative relationship with the coordinate system in column 24,

wherein Gadh teaches the VDSF display viewed by the user is considered as having *a right-*

left/top-bottom/front-rear coordinate system, whereby the user issues intuitive commands for a

user-viewpoint-dependent method of alignment of said child element. And, Gadh also clearly

teaches that VDSF determines the XYZ coordinate axes when a viewpoint-dependent alignment

command is issued (Col. 24, lines 6-32). The examiner respectfully submits that anything

aligned with a coordinate system shares an associative relationship with the coordinate system.

11.   Applicant argues that Gadh fails to teach that the virtual blank lacks an associative

relationship with a coordinate system. The examiner respectfully disagrees. The examiner

respectfully submits that Gadh reads on this limitation in anyone of the following ways:

a) Gadh clearly teaches at least two coordinate systems. One from the user viewpoint and

the others that are XYZ coordinate systems fixed on the model. Once a user viewpoint

command is issued to align a child element the VDSF determines which of the XYZ coordinate

axes fixed on the model most closely corresponds to the left-right axis (from the user viewpoint) and the child element is aligned on the model along that axis of the model (the XYZ axis) (See col. 24, lines 6-32). If the model were not lacking an associative relationship with the user viewpoint there would be nothing for VDSF to determine. It is because the model is lacking an associative relationship with the user viewpoint that the VDSF must make the determination of which XYZ axis to use in alignment.

b) Figs. 25A-25D of Gadh show and Col. 24, lines 6-14 teaches b1 has a coordinate system and b2 has a coordinate system, wherein b1 and b1's coordinate system lack an associative relationship with the coordinate system of b2, i.e., it is clear that one of ordinary skill in the art would not use the coordinate system of b2 to align an element to b1.

Conclusion

12.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.
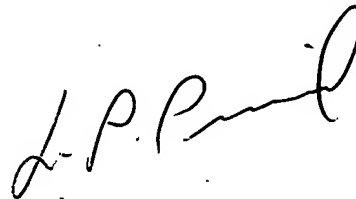
13.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Sean P. Shechtman whose telephone number is (571) 272-3754.

The examiner can normally be reached on 9:30am-6:00pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Leo P. Picard can be reached on (571) 272-3749. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SPS

Sean P. Shechtman

March 12, 2006

**LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100**

Continuation of Disposition of Claims: Claims pending in the application are 1,2,9-11,13-18,21-24,31-33,35-40,43-46,53-55,57-62,65-68,75-77,79-84 and 87-92.